

California Hydrogen Highway Blueprint **Implementation Topic Team**

Sub-team RA/M.2 – Public Safety & Risk Analysis

Implementation Topic Team Public Hearing

August 31, 2004

CalEPA, Sacramento, CA





Risk Assessment and Management **Issues Overview**

- Relatively little experience building and operating hydrogen fueling stations. Of the 6 H2 stations in CA operating for about 1 year - no problems
- Codes and Standards not fully developed for hydrogen fueling stations until mid 2005 (significant gaps exist)
- Implementation Team Proposes:
 - Until the State addresses all uniform code and regulation issues:
 - Permitting submittals for hydrogen fueling stations should include specific elements related to RAM.
 - When appropriate codes and standards are adopted, some of these elements may be eliminated.
 - Work with the Fed. Gov't and SDOs/CDOs to supply operational data to develop and refine C&S. (Exposure and



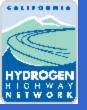


Proposed Permitting Submittal Elements (Permanent)

State needs to develop Template(s) for:

- Emergency Response Plan
 - Detailed plan to execute when incident occurs
 - First Responder Training
 - Mitigating impacts from incidents that may occur
- Operation Inspections
 - Enforces safe operations and compliance with C&S





Proposed Permitting Submittal Elements (Temporary until C&S adopted)

HazOp

 Detailed design review process to ensure safe design and operation

NOTE: These
elements should be
required until
appropriate C&S for
hydrogen fueling
stations are
adopted OR if
station design
contains exceptions
to the C&S

- Control / Recovery Register
 - Gives details of overall project including site, equipment, and operations

State develop template(s) for:

Quantitative Risk Assessment

 Measures selected site risks via identification of hazards, analysis of frequency and probability of occurrence, and consequence analysis by applying selected risk criteria





Additional Safety Recommendations State should consider the following actions:

- Create Emergency Strike Team
 - Investigates accidents and incidents
 - Prepares report identifying actions that increase safety; communicate immediately to other H2 station owners
- Require certification of all hydrogen fueling station maintenance providers
- Require documented periodic maintenance inspections
 - Periodically revisited when more equipment and station data are available





Additional Suggestions

State should investigate

- Environmental risk of fueling stations and delivery
- Seek appropriate exemptions and/or legislative change. For example: CEQA 70 - Categorically Exempt (CE)
- Developing a hydrogen fueling station specific template for EIS

